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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/195,533	11/18/1998	HENRIK K. NIELSEN	KLAC0015	4428

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EXAMINER	
ROSENBERGER, RICHARD A	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/195,533	NIELSEN ET AL.	
	Examiner	Art Unit	
	Richard A. Rosenberger	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/1/2001; 9/20/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,24,26-31,37-48,50 and 61-63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-17,37-47,50,62 and 63* is/are allowed.

6)☒ Claim(s) *24,26-28,30,31,48 and 61* is/are rejected.

7)☒ Claim(s) *29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The specification is objected to as it lacking correspondence with the claims in that it lacks some of the claimed subject matter. All of the independent claims now pending include the limitation that the beam spans at least three sensing elements. There appears to be in the specification no statement of this claimed specific claimed subject matter. The specification includes, on page 3, lines 16-22 disclosure that includes a statement that "the expected beamwidth spans several array elements", but the specification appears to lack the specific claimed value of "at least three". The disclosure as filed, which includes the originally filed claims, does include the "at least three" in original claim 52, but this specific limitation does not appear to be present in the specification itself.

Similarly, claims 24 and 48 call for detecting "detecting surface variations having relative surface height variations of less than approximately 1000 nanometers and surface contours over areas larger than particles and scratches" which appears to be found in at least original claims 24 and 48, but does not appear to be present in the specification itself.

Applicant is required to either add the above-mentioned claimed subject matter to the specification or to point out where in the specification the limitations are present either by original disclosure or by being previously added by amendment.

It is explicitly noted this *not* a rejection for lack of adequate disclosure; as set forth above the disclosure as filed as a whole is adequate to support the limitations discussed above. But the disclosure to support the limitation does not appear to be present in the specification.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenfeld et al (US 3,885,875) in view of Hercher (US 5,812,266) and Pryor et al (US 5,164,579).

Rosenfeld shows a system for detecting contours on a specimen surface (21), comprising: application means for applying light energy (beam 20) to said specimen surface, said application means comprising a light generating device (10) and an optical element arrangement (13) for receiving light from said light generating device and impinging light toward said specimen surface; and detecting means (26) for detecting surface variations, said detecting means comprising an optical relay (13, 15, 16) for transmitting light energy received from said specimen surface and receiving a retro beam detected therefrom and transmitting said retro beam toward a multi-element sensing device (26) comprising a plurality of sensing elements.

Rosenfeld discusses what appears to be a bicell position sensing detector, but does not specifically teach a detector in which the retro beam is received by at least three sensing elements. It is known in the art that, rather than such a bicell, a larger detector array can be used; see Hercher, which in a similar system which, like Rosenfeld, uses a detector to detect the position of a light beam on the surface of a detector, explicitly teaches the known use of, and substitutability of, a larger array of detectors for a bicell; see column 7, lines 11-13 of Hercher. It would have been obvious to use such a larger array for the bicell of Rosenfeld because Hercher explicitly teaches that such a substitution of the two types of detector can be made. Although Hercher clearly teaches that the larger array can be used, it does not explicitly teach circuitry or

the like for use with such a known use of a larger array; those of ordinary skill would turn to other references, such as that of Pryor, for this knowledge, which shows, in relation to figure 4 in particular, that the beam falls on at least three detectors and the centroid of the detected light spot across the individual detectors is found. It would have been obvious to use this technique because it a known manner of using the larger array taught by Hercher.

Claim 24 calls for "detecting surface variations having relative surface height variations of less than approximately 1000 nanometers and surface contours over areas larger than particles and scratches". Rosenfeld mentions that the surface variation in the range of 0.000005 in. to .00005 in. (127 nm to 12,700 nm), see column 2, line 42, which includes the "less than approximately 1000 nanometers" of the claims. Although Reference does not explicitly discuss spot size, those in the art would have recognized that the spot must have some size, and, by no more that routine experimentation, choose a suitable spot size; a choice of spot size which is larger than "particles and scratches", and thus is relatively insensitive to such, would have been obvious when, as it is in Rosenfeld et al, the surface unevenness and not the presence of such flaws is of interest because it is obvious to set up the instrument in a manner to measure what is of interest and not what is not of interest.

Similarly as above for claim 48, performing the steps corresponding to the apparatus above would have been at least obvious; it is obvious to actually use the device.

As in claim 26, element 16 of Rosenfeld et al is a "diversion element" as claimed.

As set forth above, Hercher teaches using a linear array of sensors for a position measuring sensor, as in claim 27.

As in clams 28 and 61, the calculation of the centroid in the manner taught by Pryor requires, by the definition of the centroid, weighting and summing of the information from the sensing means.

As in claims 29 and 30, as discussed above the Rosenfeld reference teaches measuring surface unevenness in a range of down to about 127 nanometers, which is "less that approximately 1000 nanometers" and is "greater than approximately 1.0 nanometers", and is also "greater than approximately 0.1 nanometers.

4. The remarks filed 1 June 2001 argue that the dark field collection arrangement and the Nomarski DIC detection are adequately disclosed, although does not point out anywhere in the specification where there is disclosure sufficient to teach those if ordinary skill how to make and use these claimed features in the overall claimed combinations. The remarks argue that those in the art would somehow "know" that Applicants were "in possession" of the dark field system, and that there is a mention of the Nomarski Differential Interference Microscope in the specification. However, 35 USC 112 requires, among other things, that the specification be sufficient to teach those in the art how to make and use the claimed invention, not merely set forth enough to demonstrate that the applicant was "in possession" of it, and the remarks do not appear to address the adequacy of the disclosure to teach how to make and use. However, upon further review of the application, it is seen that an explicit reference in made (page 3, line 30 through page 4 line 2) to patent 5,798,829 to Vaez-Iravani as teaching Nomarski differential interference contrast microscopy, which patent also appears to include such as system in a broader system which also includes a dark field system. Although the subject matter of that

patent was not incorporated by reference, the explicit reference to the patent is taken to be sufficient to show that this claimed subject matter was known in the art and that the explicit pointing to the patent in the specification is sufficient to direct those in the art to the prior art disclosure of the subject matter. Thus the objection and rejection under 35 USC 112, first paragraph of the previous office action is withdrawn.

5. Independent claims 1 and 37 have been amended to include, in combination, the instrument which includes a multi-sensor device arranged so that the beam is received by at least three sensing elements, and that there is " a plurality of weighting elements" each of which "alters a characteristic of an electrical output of the corresponding sensing element from a predetermined point on the multi-element device" (claim 1) and the corresponding method step of "altering a characteristic of said electrical output according to a weighting element corresponding to a distance of each of the plurality of sensing elements from a predetermined point on said multi-element device" (claim 37). The claimed "weighting elements" that "alters a characteristic of said electrical output" correspond to structure beyond the use of a computer program to weight numeric representations of the outputs of the sensing elements as in Pryor above.

This amendment adding the "at least three" language to the claims overcomes the previously applied reference to Throngnumchai, which appears to contain no disclosure relating to the use of such a circuit for beams that cover "at least three" sensors; the entire discussion of Throngnumchai appears to relate to a beam that strikes only one of the sensors at a time, and does not discuss the use of such a circuit with a beam that strikes "at least three".

For the reasons above, independent claims 1 and 37, and claims 2-17, 38-50, 62 and 63, dependent from claims 1 and 37, are allowable.

Claim 29 calls for the use of a programmable logic array which "determines signals based on predetermined threshold exceedance" and "initiates any determined signals via said multiplexer". This does not appear to be taught or suggested by the art of record, and is thus allowable subject matter. Claim 29 is objected to as being dependent from an unallowed claim, but would be allowable if rewritten in independent form including all of the limitations of its parent claims.

6. The remarks referring to the references applied above have been considered, but have not been found to be persuasive.

The remarks fail to recognized that the Hercher reference *explicitly* teaches the substitution of a linear array detector for a bicell detector; the argument would have claims issue for following the explicit teaching of the Hercher reference of making an art-recognized, indeed, art-taught, substitution. Doing what those in the prior art explicitly tell one to do does not produce patentable inventions, because it is simply obvious to follow the teaching of the prior art.

The remarks also improperly read the references too narrowly. All three applied references above teach, for the purposes for which they are applied, the use of detectors for determining the position of a light spot on a detector. There are, of course, a great many arrangements in which it is of interest to known the position of a light spot on a detectors, but that does not change the fact that determining the position of a light spot on a detector

arrangement is determining the position of a light spot on a detector, nor would it fool those in the art into falsely believing that such a system of detecting a light spot position on a detector would cease to operate simply because of some change in the manner in which the position of the light spot is changed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
13 May 2005

Richard A. Rosenberger
Primary Examiner